Systems' response and adaptation strategies in the Caribbean (USGS Caribbean LCC funds)

Jaime Collazo, USGS North Carolina Cooperative Fish and Wildlife Research Unit

Overview: Puerto Rico, as island contained within the West Indies archipelago, supports a unique array of tropical biological resources, many under the stewardship of the Department of Natural and Environmental Resources and US Fish and Wildlife Service. Environmental stressors such as urban growth and climate change represent ongoing and future challenges for managers and conservation planners in Puerto Rico, the US Virgin Islands, and the rest of the Caribbean Basin. Climate change, in particular, challenges many of the basic assumptions used by conservation planners because important system drivers (e.g., temperature, precipitation) will be non-stationary (non-equilibrium) making it difficult, if not impossible, to project consequences and to maintain recent historic conditions in conservation lands into the future. The proposed project will facilitate forging long-term partnerships among multiple state and federal agencies, academic institutions and non-governmental organizations in Puerto Rico and elsewhere in the Caribbean, and hence, assist in the efforts to stand-up and operationalize the Caribbean Islands LCC.

Project Goal: Develop selected, but essential, databases and models to lay the foundation to formulate conservation and adaptation strategies to deal with environmental stressors, particularly climate change. This project facilitates the full integration of science-support projects being conducted in southeastern United States aimed at providing managers with a basis to formulate adaptation strategies.

Deliverables: This is a two-year project that will build on work already done as part of the Southeast Regional Assessment Project (SERAP). Key products will include:

1. Models of climate-change related effects on water quantity and water temperature across Puerto Rico
2. Models of vegetation dynamics and projections of future land covers
3. Assessment of the potential impacts of sea level rise on coastal ecosystems and related wildlife resources

Timeline: The development of tools to simulate climate change effects of water quantity and temperature and the development of vegetation dynamics and land cover projections components of the project will be completed by the end of FY12. Assessing the ecological impacts sea-level rise in Puerto Rico will be completed by the end of FY13.